

REMARKS

Claims 1-20 are all the claims pending in the application.

Applicants note that a number of editorial amendments have been made to the specification for grammatical and general readability purposes. No new matter has been added.

I. Claim Rejections under 35 U.S.C. § 102

Claims 1-9 and 11-19 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Aarts et al. (US 6,111,960).

Claim 1, as amended, recites the feature of a formational condition-establishing unit operable to establish a formational condition in such a manner that a plurality of overtone components to be generated meet a given condition. Applicants respectfully submit that Aarts does not disclose or suggest at least this feature of claim 1.

Regarding Aarts, Applicants note that this reference discloses the use of a circuit for improving low-frequency perception (see col. 4, lines 50-51). For example, as disclosed in Aarts, such a circuit can include a LPF 20, a detector 28, a divider 30, a harmonics generator 22, a multiplier 32, and an adder 26 (see Fig. 2).

In this regard, with respect to the circuit shown in Fig. 2, Aarts explains that if the harmonics generator 22 produces a second and third harmonic of the input signal, then the amplitude of the second harmonic and third harmonic will depend on the amplitude of the input signal to the second power and the third power, respectively (see col. 5, lines 41-46). Thus, as explained in Aarts, at low signal levels, the amplitudes of the generated harmonics will have a

different relationship with the fundamental harmonic than at high signal levels (see col. 5, lines 49-51).

In the Office Action, the Examiner has pointed to the above-noted description of Aarts at col. 5, lines 41-51 as allegedly disclosing that an overtone-generating unit is operable to generate a plurality of overtone components in such a manner that the plurality of overtone components meet a given condition (see Office Action at page 3).

While Applicants disagree with the Examiner's position, and point out that the above-noted disclosure at col. 5, lines 41-51 of Aarts merely indicates that harmonics (e.g., a second and third harmonic) can be generated by a harmonics generator, with the amplitudes of the generated harmonics having a different relationship with the fundamental harmonic depending on the signal level (i.e., low or high), Applicants note that claim 1 has been amended herein so as to recite the feature of a formational condition-establishing unit operable to establish a formational condition in such a manner that a plurality of overtone components to be generated meet a given condition.

With respect to such a feature, Applicants note that while Aarts discloses the ability to generate harmonics using a harmonics generator, that the mere ability to generate harmonics does not correspond to the ability to establish a formational condition in such a manner that a plurality of overtone components to be generated meet a given condition, as recited in amended claim 1. Accordingly, Applicants submit that amended claim 1 is patentable over Aarts, an indication of which is kindly requested.

Claims 2-9 depend from claim 1 and are therefore considered patentable at least by virtue of their dependency.

In addition, regarding claim 4, Applicants note that this claim recites that the established formational condition defines that a number of the one or more overtone components generated based on a filtered component that belongs to a higher frequency band among the several frequency bands is not greater than a number of the one or more overtone components generated based on a filtered component that belongs to a lower frequency band among the several frequency bands. Applicants respectfully submits that Aarts does not disclose or suggest such a feature.

In particular, Applicants note that Fig. 9 of Aarts depicts a circuit having multiple band-pass filters 20A-20N, multiple scaler and harmonic generators 23A-23N, and multiple band-pass filters 24A-24N (see col. 9, lines 3-11). As disclosed in Aarts, each of the band-pass filters 20A-20N selects a different small frequency band, and harmonics are then generated by the harmonics generators 23A-23N (see col. 9, lines 16-21). By providing the above-noted band-pass filter 20A-20N and harmonics generators 23A-23N, and thereby dividing the spectrum into small bands and assigning separate harmonics generators to each band, Aarts explains that it is possible to prevent intermodulation from taking place (see col. 9, lines 26-35).

Based on the foregoing description, Applicants note that while Aarts discloses the ability to prevent intermodulation from taking place by providing band-pass filters 20A-20N and assigning an individual harmonics generator for each band, Applicants note that such disclosure does not in any way whatsoever correspond to the above-noted feature recited in claim 4 which indicates that the established formational condition defines that a number of the one or more overtone components generated based on a filtered component that belongs to a higher frequency band among the several frequency bands is not greater than a number of the one or more

overtone components generated based on a filtered component that belongs to a lower frequency band among the several frequency bands. Accordingly, Applicants submit that claim 4 is patentable over Aarts, an indication of which is kindly requested

In addition, regarding claim 7, Applicants note that this claim recites that the established formational condition defines that the plurality of overtone components generated by said overtone-generating unit fall within a range of a given frequency, and that only the plurality of overtone components having a single degree for each of the several frequency bands are generated. Applicants respectfully submit that Aarts does not disclose or suggest such a feature.

Regarding the above-noted feature, Applicants note that while Fig. 9 of Aarts discloses the ability to prevent intermodulation from taking place by providing the above-described band-pass filters 20A-20N and harmonics generators 23A-23N, that such an ability does not correspond to a condition which defines that only a plurality of overtone components having a single degree are generated. In other words, Applicants respectfully submit that there is absolutely no disclosure in Aarts suggesting that only overtone components having a single degree are generated for each of the frequency bands (e.g., the bands defined by the band-pass filters 20A-20N). Accordingly, Applicants submit that claim 7 is patentable over Aarts, an indication of which is kindly requested.

Regarding claims 8 and 9, Applicants note that because Aarts does not disclose that only the plurality of overtone components having a single degree for each of the several frequency bands are generated, that Aarts also does not disclose or suggest the feature recited in claim 8 which indicates that the single degree is a reachable last degree, or the feature recited in claim 9 which indicates that the single degree is set in such a manner that the plurality of overtone

components generated based on the filtered components that belong to the several frequency bands have frequencies non-overlapped with each other. Accordingly, Applicants submit that claims 8 and 9 are patentable over Aarts, an indication of which is kindly requested.

Regarding claim 11, Applicants note that this claim has been amended to recite the feature of establishing a formational condition in such a manner that a plurality of overtone components meet a given condition. For at least similar reasons as discussed above with respect to claim 1, Applicants respectfully submit that Aarts does not disclose, suggest or otherwise render obvious such a feature. Accordingly, Applicants submit that claim 11 is patentable over Aarts, an indication of which is kindly requested.

Claims 12-19 depend from claim 11 and are therefore patentable at least by virtue of their dependency. In addition, with respect to claims 14 and 17-19, Applicants note that these claims are also patentable for at least similar reasons as discussed above with respect to claims 4 and 7-9.

II. Claim Rejections under 35 U.S.C. § 103(a)

Claims 10 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Aarts et al. (US 6,111,960) in view of Case (US 6,335,973).

Claim 10 depends from claim 1, and claim 20 depends from claim 11. Applicants submit that Case fails to cure the deficiencies of Aarts, as discussed above, with respect to claims 1 and 11. Accordingly, Applicants submit that claims 10 and 20 are patentable at least by virtue of their dependency.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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